E-business E-commerce Evolution: Perspective and Strategy

by *Faramarz Damanpour*, Department of Finance and Business Law, James Madison University, Harrisonburg, Virginia 22807

Abstract

Chapter two of the Internet is being written, and it is about doing everything faster, better, and cheaper. As we begin a new century, E-business and E-service will move to the fore-front of technology priorities. To take full advantage of the E-service, you need to look at your organization from an alternative perspective. The question is how to deal with these changes, at what cost, and at what speed. This is not the time to worry about "disinterme-diation". It is the time for cooperation, integration, and the consideration of customer loy-alty, profitability and competition advantage. These are premises that this paper is planning to address.

Introduction

The Internet has changed the way companies communicate, how they share information with business partners, and how they buy and sell. It has also changed the way they view their Internet technology investments. As companies launch electronic business projects, many are tossing out conventional thinking about the need for a return on investment and focusing on how their initiatives advance their overall business strategy-whether to im-prove customer satisfaction, increase brand awareness, or open new sales channels. A small but growing number of companies have recently begun searching for new ways to measure the return on investment (ROI) of their E-business projects. For less strategic projects, such as those that increase the efficiency of the supply chain, traditional ROI evaluations are still being used. The bottom line is that E-business is seen increasingly as something that must be pursued at all costs.
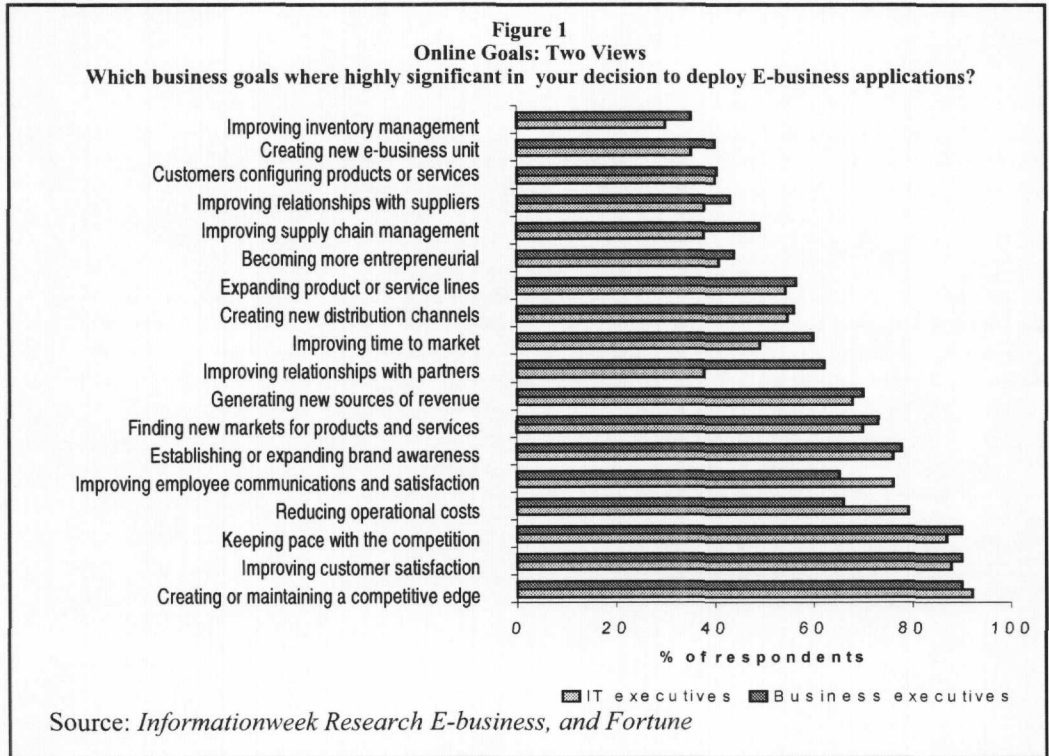
For example, The Bank of Montreal, Canada's third largest bank, did not even con-sider ROI when it committed $69 million to online banking initiatives, to develop web links to its mainframe applications and databases. They went ahead with E-business with-out knowing whether they would make money out of it or not. They understood that with-out E-business the bank could not continue to be a leading-edge, full-service bank. Many other corporations pursued the same route without formally evaluating their poten-tial ROI.

In a recent survey of 375 senior business and IT executives conducted by Informa-tion Week and Business Week, in five sectors of finance, health care, information tech-nology, manufacturing, and retail, more than 70 percent said E-business has thrust their department into a business decision-making process, and 61 percent said E-business has forced it to lead business-process reengineering, but only 17 percent of IT managers and 12 percent of business executives said their companies formally required them to demon-strate the potential payback of their E-business applications. On the other hand, 28 per-cent of IT managers and 39 percent of business executives said their companies required no ROI evaluation whatsoever. Furthermore, 80 percent of those surveyed said employ-ees are burdened by new skills requirements, 73 percent said that E-business has spurred

additional employees training, and 55 percent said E-business has forced individual employees to take on more responsibilities. [E-Business Evolution 2000]

The key problem is that many businesses are playing catch-up with E-business, and jumping into it without carefully considering strategic implications to the move. Bob Parker, an analyst from AMR Research believes that two-thirds of companies are starting E-business simply out of a sense of urgency, without evaluating the result. Apparently, it is more an element of fear of getting left behind. As a result, the probability of failure increases because someone decided to be on the net. Nevertheless, this is a critical decision, and companies that weigh those factors often come to the same conclusion to proceed, regardless of ROI. The survey results support this notion. Many executives indicated that E-commerce sites have yet to pay huge dividends. Only 28 percent of respondents' Web retail sites have aided their online sales significantly in the past 12 months, and 29 percent said there was change. [E-Business Strategic Investment 2000]

An *Information Week* research survey reports that companies are justifying their E-business ventures not in terms of ROI but in terms of strategic goals, in order to maintain a competitive edge, keep customer satisfaction, and establish and expand brand awareness (see Figure 1). Customer satisfaction was a key reason for the Bank of Montreal to launch "Mbank", an online banking service, and it paid off. According to the bank, more than 150,000 customers used the bank's service, and their customer satisfaction level increased from 70 percent to 95 percent. Here, companies need to assess and estimate the cost of sending an electronic bill versus mailing a paper bill and calculate how long it will take to recoup the IT investment. The other questions that companies need to consider are:

Figure 1
Online Goals: Two Views
Which business goals where highly significant in your decision to deploy E-business applications?

Source: *Informationweek Research E-business, and Fortune*

- Does the initiative target a valuable customer segment?

- Does it improve the quality of customer service?

- Does it give the company a commanding market share lead?

- Does it fit with other existing infrastructure, and is it a strategic fit with other existing ventures?

Statement of Purpose

The purpose of this paper is eight-fold. First, it starts with the introduction and definition of E-business and E-commerce, its application and evolution, and provides statistical data regarding its accomplishment. It follows with introducing the factors that drive E-business, its goals, and managerial implications and models. The third section presents the four faces of E-business-the business financial models perspective, and the relationship perspective, commerce perspective, and responsiveness perspective. The next part relates the benefits of E-business: better management information, better integration of suppliers and vendors, better channel partnership, lower transaction costs, better market understanding, and expanded geographical coverage. The fifth section is devoted to the issues concerning E-commerce and trade, with a discussion related to the WTO and FTAA dealing with Internet and E-commerce issues. The discussions include a seven-point recommendation on how to adjust or change regulations governing global trade via the Internet.

The fifth section deals with E-business services and the three critical success factors for E-business. Next, we discuss and review the E-business and Internet issues from the worldwide perspective, and present alternative financial models to fund E-business strategies. The final part deals with the issues of Internet security and vulnerability. It includes an introduction of currently available software and methods to guard against fraud and vandalism with a few examples, and the report on the recent CSI/FBI survey regarding E-security. Discussions end with a conclusion and references.

What is E-Business/E-Commerce?

E-business/E-commerce is any "net" business activity that transforms internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy. The Gartner Advisory Group, a research and advisory services firm, describes E-business in terms of a quantity rather than an absolute state of a company. They consider a business an E-business to the degree that it targets the market opportunities of conducting business under new electronic channels, which revolve around the Internet. This is an acknowledgement that E-business comes in many forms and can be implemented to a very small or large degree. It is also an acknowledgement that the "Internet" and the "Web" are essential components of an E-business/commerce strategy. Therefore, companies must participate in external business relationships by using computer interactions (i.e. transactions, support, marketing, communication and collaboration) by either business-to-business or business-to-consumer, if it is to be considered an E-business. Of course in any business strategic decision, a company must consider and compare its business decision with that of competitors and also consider new threats to a company's future health. [Gartner Advisory 2000]

One should not ignore the fact that the value proposition of E-business includes the creation of new market opportunities through electronic channels. These electronically channeled market opportunities enable companies to lower transaction costs, reduce delivery times, improve customer services, and add convenience. Increasingly, electronic sales, marketing, and distribution channels will grow at the expense of traditional channels for business.

E-Business/E-Commerce Model. Electronic business is no longer an alternative, it is an imperative. Dot com startups are grabbing market share online and putting pressure on brick-and-mortar companies to find the right structure for their Web operations fast. The truth is that there is no simple prescription or model. Even companies in the same industry, of the same size, or with similar cultures are finding that one E-commerce strategy does not fit all. Moving toward E-business/commerce is easier said than done. Many companies are struggling with the most basic problem: what's the best E-business model? And, they are finding that there is no basic model.

As a result, they are experimenting with different formulas. Some are creating E-business subsidiaries, then spinning off as separate online entities. Others are investing in or merging with Internet startups. Some are even moving their businesses entirely to the Web. One factor is clear that companies need to move forward with an Internet strategy. The biggest challenge most companies face is how quickly they leverage their traditional IT and business strength via E-commerce to help run their physical distribution network by the blend of cyberspace and real space. You can not just have a good Web site, you have to have a data warehouse to know your customers, be able to connect production with distribution channels, link its Web front end to its quote and billing systems, complete funds transfer, and acquire billing inquiry from the Web site.
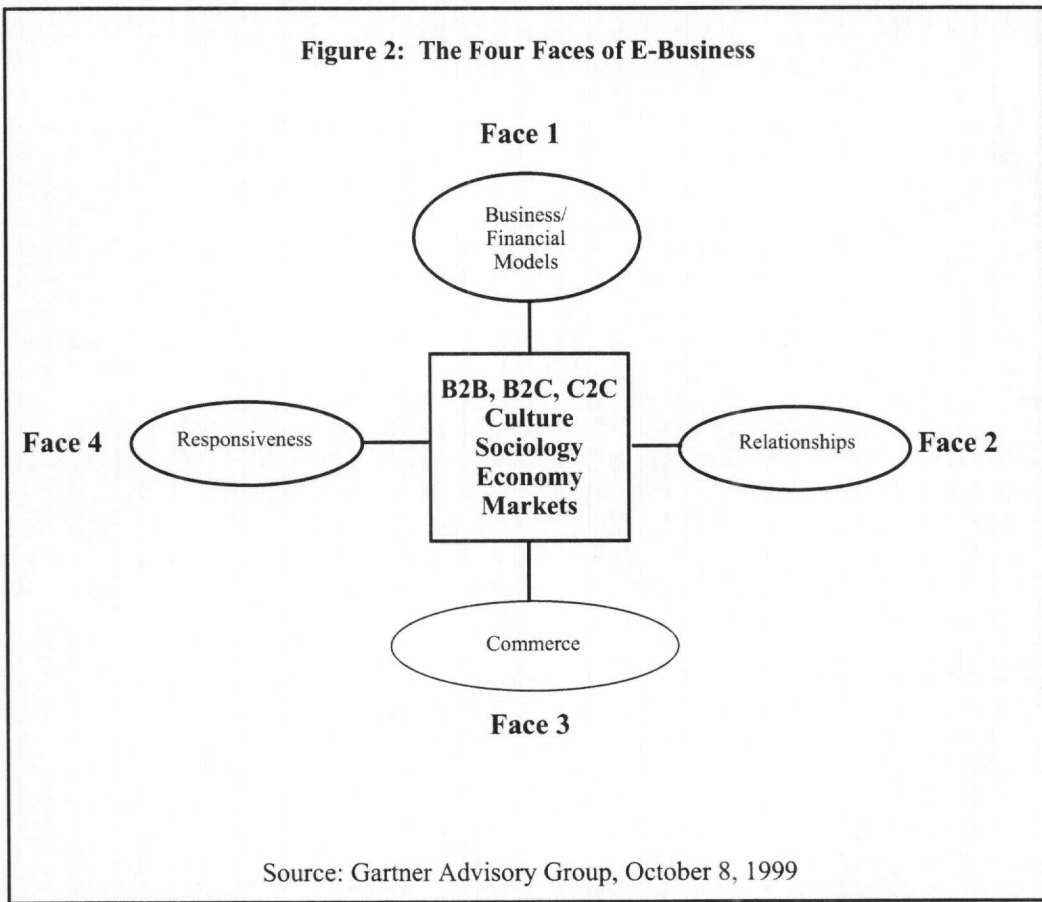
While speed is the obvious imperative, many companies still struggle with how to take the first step. The biggest mistake that companies are making is pouring large amounts of money into the Web system, without first looking at the risk factors and preparing for the true application of the system. Companies need to understand that E-business is like a puzzle, it requires many parts to match each other and it requires teamwork. It can be a traumatic experience.

Broadband Revolution. Internet protocol was in part aided by the recent revolution in the world of telecommunications. When the Internet exploded onto the post-deregulation (the Telecom Act of 1996) and post-divestiture, it created a networked business model that has thoroughly transformed the ways companies interact with their employees, suppliers, and customers. At the heart of today's E-business enterprise are integrated telecommunications services and applications-voices, data networking, e-mail, faxing, and remote and Internet access capabilities. The broadband revolution is all about the convergence of old fashioned voice technology with high-speed data technology. The Internet and the new telecommunication facilities revolutionized customer expectations and the way new products and services are developed. It caused enterprises to rethink their operational and organizational models. In fact e-mail is not the only mail that relies on communications networks. The U.S. Postal Service with the help of MCI-Worldcom operates one of the world's largest telecommunication networks. The networks links 34,000 U.S. Postal service locations and accounts for more than 7 million transactions daily at the fraction of the previous costs and with more than 80 percent efficiency. Now the Postal Service employees use the network to store and distribute documents, stay current on the latest inter-

nal developments, and augment customer service efforts. More than 16 million IP addresses reserved for the network make it possible to assign a home on the network for every employee, computer, fax machine, cell phone, and pager. [Fortunesection.com 2000]

The Faces of E-Business

According to the Gartner Advisory Group, there are four faces of E-business associated with a compan'ys business opportunity and risk. The faces determine the focus of a business, but they neither limit the usage of any model or idea, nor are all faces are applicable to all companies. The faces are: The Business/Financial Models Perspective, The Relationships Perspective, The Commerce Perspective, and the Responsiveness Perspective.

Figure 2: The Four Faces of E-Business

Face 1

Business/Financial Models

B2B, B2C, C2C Culture Sociology Economy Markets

Face 4 Responsiveness   Relationships **Face 2**

Commerce

Face 3

Source: Gartner Advisory Group, October 8, 1999

Face 1: The Business/Financial Models Perspective. This face is centered on the business model and opportunities that operate as an electronic entity rather than a physical one. Financial considerations such as reduced costs and efficiency in operation are the key. This model may require a new corporate culture, image, and accounting guidelines. Technology is used here strictly as an enabler of business opportunity. The model can be used for an existing company (brick-and-mortar), new spin-off form brick-and-mortar, or a small, unknown company (like Amazon.com).

Face 2: The Relationships Perspective. New relationships and collaboration will be forged in E-business to enter new markets or enhance customer, supplier and business interactions. Customer relationship management, supply chain management and technology infrastructure management can be created by E-commerce change. For example, the traditional order and invoice process can be reported and transmitted electronically. Electronic marketplaces, catalogs and bidding systems, and Internet search can revolutionize business conduct, accelerate business activities, increase global competition, create global logistics networks, provide better customer relationships and cheaper and better services, and speed up goods and information along the entire supply chain.

Face 3: The Commerce Perspective. The E-commerce face is about electronic buying and selling. This requires the building of systems, services, models, and relationships to support the most effective buying and selling mechanism. Face 3 overlaps other three faces. It emphasizes the importance of technology to business success, and customer demands. Central to the opportunity of leveraging the Internet and Web for E-business is the ability to use this medium to reach buyers throughout the buying process at all times, including those that might otherwise be inopportune (e.g. at night).

Face 4: The Responsiveness Perspective. This face deals with efficiency and timing of business transactions. Responsiveness means reducing the time between a business request and its fulfillment. It is also about increasing the efficiency of the computing systems (operating systems and their support services) that provide fulfillment. This will help a company to complete a business transaction electronically without resorting to hand-carried or faxed information. For example, the direct connection of a rent-a-car automobile request system to insurance companies. Results are: improved efficiency, reduction of errors, and hopefully, higher customer satisfaction.

E-Business Benefits

According to Intel Corporation, six benefits are attributed to E-business. The final goal is to gain competitive advantage over those who lag. As the use of E-business technologies grows within the company and between the companies, it becomes increasingly important for businesses to deploy PCs that can run the latest multimedia and Web software. In E-business, the Web site increasingly becomes the "interface" between employees, between companies, and between companies, their suppliers, and their customers. For example, online shopping removes traditional retailing barriers. It removes geographical barriers, time barriers, information barriers, and supplier switching barriers. In general, the six benefits of moving to E-business are:

- *Better Management Information:* Allows management to deal better and faster with sales data reporting and analysis. Progress in this area may lead to more efficient production, inventory and distribution, marketing and sales, better financial planning, and more effective R&D and product development.

- *Better Integration of Suppliers and Vendors:* This action gives companies a better understanding of the business' needs and encourages a higher level of product and service delivery. The process can be cost efficient, accelerate the interactions, and lead to a faster market response capability.

- *Better Channel Partnership:* The benefit is enhanced by having the right products available at the right time and price, and knowing how to sell them most ef-

fectively. E-business processes allow the companies to provide faster information about product availability, changes in the product, pricing, and the company's promotional policy.

- *Lower Transaction Costs:* This reduction of costs and the efficiency factor are probably the most important benefits of the E-business. Internet-based transactions systems cost less over the long run because they reduce the need for a large organizational system. A study by Allen & Hamilton Consulting Company for a banking system found that a transaction costing 13 cents on the Internet leaped to $1.08 if handled in a bank branch. Similarly, a study for US grocers who allow their customers to place orders from home have found that the cost of handling a transaction for $100 worth of goods drops from $6 for a phone or fax order to just 20 cents for an online order.

- *Better Market Understanding:* E-commerce transactions can automatically extract information about customers and their buying behavior. The customer data is captured along with the transaction, thereby creating a new mechanism for predicting market trends or targeting repeated or related sales. Loyal customers can receive loyalty discounts.

- *Expanded Geographical Coverage:* E-business can be accessed from any place, at any time. Thus, it eliminates barrier. It allows businesses to sell and deliver products and services across the world. It is especially beneficial to small businesses to extend their reach far beyond traditional boundaries.

There are three business areas that find the most benefit from online trading: automobiles, online lending, and travel. In the last 12 months, 18.2 million people in the U.S. shopped for cars and cars parts online, but did not necessarily make a purchase. Forrester Research reports that 10 percent of all mortgages will be done online by 2003, and one out of six credit cards will be issued online within the next five years. Online travel purchases are expected to reach $20 billion by 2001, making an 800 percent increase over 1998's $2.5 billion. In 1999, 31 percent of consumers who went to airlines sites booked a reservation online-up from 21 percent in 1998. [ZDNet AnchorDesk 2000]

E-Commerce and Trade

The Internet has spawned a wide variety of issues related to international trade, law, policy, and intellectual property rights. The issues raised by E-business and commerce over the Internet are currently being explored for inclusion within trade agreements. Existing language of current trade agreements did not anticipate the Internet's degree and speed of growth. The World Trade Organization (WTO) and the Free Trade Area of the Americas (FTAA) have working groups looking at the issue. It is unclear how broad the scope of these discussions will be. If the issues are examined broadly, their potential significances are enormous. However, within existing provisions of trade agreements, there is language to deal with many trade-related Internet issues. There are seven areas that require review and reconsideration.

1. *Domestic Regulation Issues Related to E-Commerce.* Varying degrees of domestic regulation currently exist in WTO countries. However, there are no clear-cut guidelines regarding the potential international implications of domestic regulation. The European Union (EU) Directive on the Protection of

Personal Data requires EU member states to apply regulatory tests to both ends of cross-border data transaction, but no regulation outside their boundaries. Therefore, EU member states must enact legislation to ensure that transfers of personal data outside their boundaries are allowed only to jurisdictions offering "adequate" protection to that data. For example, a non-EU company established in the EU would be limited in its ability to transfer data back to its head office outside the EU, if the head office were located in a jurisdiction that did not meet the EU adequate test.

The U.S. is opposing the EU directive on the basis that the market should be allowed to self-regulate. In general, the U.S. favors minimal domestic regulation. It believes this would foster the use of cross-border E-commerce. The questions to consider are: to what degree should governments be involved in regulating data security on the Internet? And, is there a useful role for an international trade agreement in regulating data security on the Internet?

2. *Consumer Issues Related to Internet.* At present there is little consumer protection on the Internet other than that offered by the corporate sector. Consumers must basically trust that the company they are dealing with is actually who it claims to be, is located where it claims to be, and will provide the product and after-sales service it commits to. Resolution of any disputes arising from an electronic transaction depends both on the willingness of the companies involved to resolve the dispute and possibly on the consumer protection laws in those companies' home jurisdiction.

Another consumer issue is the accreditation of professionals who offer services via the Internet-such as medical diagnostics, legal advice, accounting services, architectural services. In this case, the inter-jurisdictional authentication of credentials will be difficult. Questions to consider are: what form of verification of the credential of companies/persons offering traditionally regulated service is required, and how can this be achieved? How can the business the consumer conducts be protected over the Internet? To achieve this goal the WTO needs to demand adjustments in domestic laws and introduction of new international agreements.

3. *Developing Countries and E-Commerce.* The Internet presents special challenges for developing countries. While it can disseminate cheap, fast, interactive information, it is highly dependent on infrastructure and associated operating standards. In E-commerce, developing countries face key problems of improving infrastructure and user accessibility. Naturally, they need help from advanced nations to participate in trade obligations related to E-commerce. This can be achieved via several initiatives:

- Provide technical assistance and encourage and promote education related to E-commerce.

- Emphasize the potential benefits of E-commerce for LDCs.

- Ensure that developing countries are able to participate in world fora on the subject.

- Consider flexibility in trade agreements for developing nations on E-commerce coverage.

  The important question is: can international trade agreements foster Internet E-commerce in developing countries in such a way as to enhance their economic and social development?

4   *Internet E-Commerce and Taxes or Duties.* Currently, companies engaged in Internet commerce are taxed under the normal income tax law prevailing in the jurisdiction where they are located, and customs duties also apply for goods. Some countries, like Canada, charge sales taxes (GST) on the provision of the service. In their 1998 ministerial declaration, WTO ministers made a political commitment not to introduce duties on electronic Internet transactions. The issues were addressed again at the third WTO ministerial meeting in November 1999, but they reached no agreement. WTO ministers agreed to impose no new duties on E-commerce, and continue the commitment until a future date. If electronic deliverables were considered dutiable, they would have to be classified as "goods" under the General Agreement on Tariffs and Trade (GATT). Three questions need to be addressed here:

- Will collecting duties deter international Internet use and E-commerce, or will companies and individuals use Internet and E-commerce to avoid duties?

- How difficult would it be to design a system that would allow for duties to be collected?

- Is a duty on E-commerce transactions desirable?

  In regard to services, the General Agreement on Trade and Services (GATS) may address some of the problems associated with electronic transactions classified as services, but there is no clear-cut line-by-line guidelines about different types of services. For example, would interactive "software help program" be a "good" or "service?" While it clearly provides users with a "service," it also has a physical dimension which could be regarded as a "good". Another example is an order of a book through the Internet. The electronic order is considered a service, but the book delivery has its physical form.

5. Health and Education Services and E-Commerce. In Canada and Europe, health and educational services are mainly supplied by the public sector and they are free. In the United States, they are privately owned and services are provided at different fees. Tele-medicine is an emerging field that consists of everything from medical advice on a long-distance line for a fee, to long-distance diagnoses of a patient in one city by a doctor in another city. Universities are now offering courses to students through the Internet and have been offering distance education programs for some time.

  New technologies have the potential to improve access to health and educational services that would otherwise not be available to people in remote areas or for people who are unable to access these services (disabled, elderly, shift workers, etc). As these technologies evolve further, it is likely they will be-

come more accessible and more user friendly. Furthermore, private sector service providers will want to have access to the market of WTO/FTAA/NAFTA parties. It is estimated that the value of worldwide educational services alone could reach S1 trillion. The questions that need to be considered are: how should we deal with the issue of public vs. private health and education, and how to should suck services be priced? How should the cultural issues be dealt with, and does culture deserve special consideration in negotiations dealing with E-commerce?

6   *E-Commerce and Labor.* This issue is very difficult to deal with and may require special attention. A company could hire employees to work online from sites around the world though it may not have any corporate presence in the country where the workers live. Questions could arise relating to the accountability of the company for failure to pay wages, responsibility to pay health and safety premiums, and accountability in the courts for unjustified firings and other related issues. Furthermore, the educational requirements and credentials of the professionals may differ significantly in different jurisdictions, and jurisdictions with less stringent requirements may have advantage over other jurisdictions. Another question is: how could international trade agreements be used to address any of these labor or standards related problems?

7   *Intellectual Property Issues Related To E-Commerce.* Global electronic trade raises issues concerning intellectual property (IP), i.e., issues related to copyrights, patents, trademarks, and data-protection. The resolution will require a co-ordination of domestic regulations and international cooperation. In 1994, the WTO finalized the Agreement on Trade-Related Aspects of Intellectual Rights (TRIPS Agreement). It deals with some of the "digital IP" issues identified before the Uruguay Round of negotiations were concluded; but it failed to anticipate the growth of the Internet and associated IP issues. International law has addressed to a greater degree than TRIPs the issue of copyright and protection of works in a digital environment in the World Intellectual Property Organization's (WIPO) Copyright Treaty (WCT) and in the WIPO Performances and Phonograms Treaty (WPPT). But it has not dealt with jurisdiction, enforcement, and conflict of laws in an international context, protection for databases, the role and liabilities of telecommunications and Internet service in protecting IP, and the issue of trademarks.

     In addition, several other questions need to be addressed: in a truly global cyber-market, where should disputes be resolved and whose laws should be applied? What responsibility should Internet service providers have in ensuring that intellectual property rights are respected?

E-Business Services

Faced with the imperative to do E-business or die, enormous pressure is put on companies and IT managers to re-imagine, re-invent, and re-architect their companies' IT strategies and deployments. The need for speed and for Internet skill has led many businesses to look to E-business service providers for help. The market for E-business services includes consulting, IT outsourcing, software development, and system integration. This

market has grown from S7 billion in 1998 to $10 billion in 1999, and it is expected to reach S59 billion in 2003.

Despite all these demands for IT business, there are no clear leaders in terms of market share, with players ranging from well-known companies such as IBM and Cambridge Technology Partners to smaller but growing niche players like Answer Think Consulting, Scient, and Taos. The service users are as diverse as service providers. For example, the United States Tennis Association (USTA) turned to IBM Global services for help to make match scores and statistics more easily available to the media and general public over the Internet. In addition, the USTA needed IBM to help it use Web technology to supply information and graphics to television broadcasters and to distribute tournament data through stations located around the National Tennis Center. As an extension of this information processing system, IBM installed the programming interface, equipment and networking infrastructure to allow real-time tournament results, statistics, and other data to be transferred to the official 1999 U.S. Open Web site.

Critical Success Factor For E-Business

To assist enterprises with their E-business planning, enterprises should examine three critical factors to improve performance. The three factors-execution and demand fulfillment, collaboration, and flexibility and speed-are essential components of E-business planning and Internet integration goals. The three components are interrelated and should work together for a smooth transition from traditional business channels into Web site channels.

- *Execution and Demand Fulfillment.* This factor is the infrastructure for development of other components and managerial success. E-business and Web sites should aid the demand driven production process, via the E-marketplace, E-catalogs and bidding systems, and should help to create an open sourcing environment. The result would cut the time between demand and fulfillment, and connect the supply chain to Web sites. It also improves and facilitates communications, interactions, and services. Many experts believe that Internet and Web connections are service driven factors, and reveal the importance of "services" over "products". Meeting clients demand is crucial and necessary for the fulfillment of obligations. Under this system, firms serve the market as one, and customers and consumers, employees and partners, are all treated individually. It provides a framework for collaboration.

- *Collaboration.* Collaboration emphasizes partnership with the trading community and identifies the potential most valuable partners. The corporation succeeds when management develops dynamic and just-in-time collaborations attitude and responsiveness. Flexibility becomes a factor here as firms need to develop custom solutions, and increase global competition. All these need to be done at the speed of sound, and with a seamless integration of various components.

- *Flexibility and Speed.* Speed refers to conducting business in "Internet Time", quick, accurate, and at the same time flexible. It requires the architecting of a technical business model, business interaction system, integration, and flexi-

ble specific projects strategies. Meanwhile, firms need to keep track of competition and think globally.

To achieve the above critical success, companies must plan the critical success factors at the same time and within a long range planning strategy. The Internet does not recognize boundaries; thus it is important for companies to consider the cultural and social implications of their actions, products and services.

Worldwide E-Business Professional Services Forecast

E-services have gone through three phase changes. The first phase was the introduction of elementary software programs from HP and several other companies. The second phase was the creation of customer service centers via telephone-based call centers. The third phase is the development of customer interaction centers where Web, e-mail, fax, two-way pager, video conferencing, and internet chat all come together, allowing customers to move fluidly among communication channels and service agents. It has created a new environment about speed, execution, sophistication, and a new way of working and living. With customer acceptance of Web-based transactions, E-services moved to the forefront of technology priorities. According to Gartner Group/Dataquest, companies worldwide have already spent $50 billion on electronic professional services, $19 billion alone in 1999, with the U.S. share being $10 billion. It is estimated that the costs will reach $100 billion by 2003 (Figure 3).

Figure 3: Worldwide E-business Professional Services Forecast 1999-2003

Source: *Gartner Group/Dataquest,* 1999, and *Fortune*
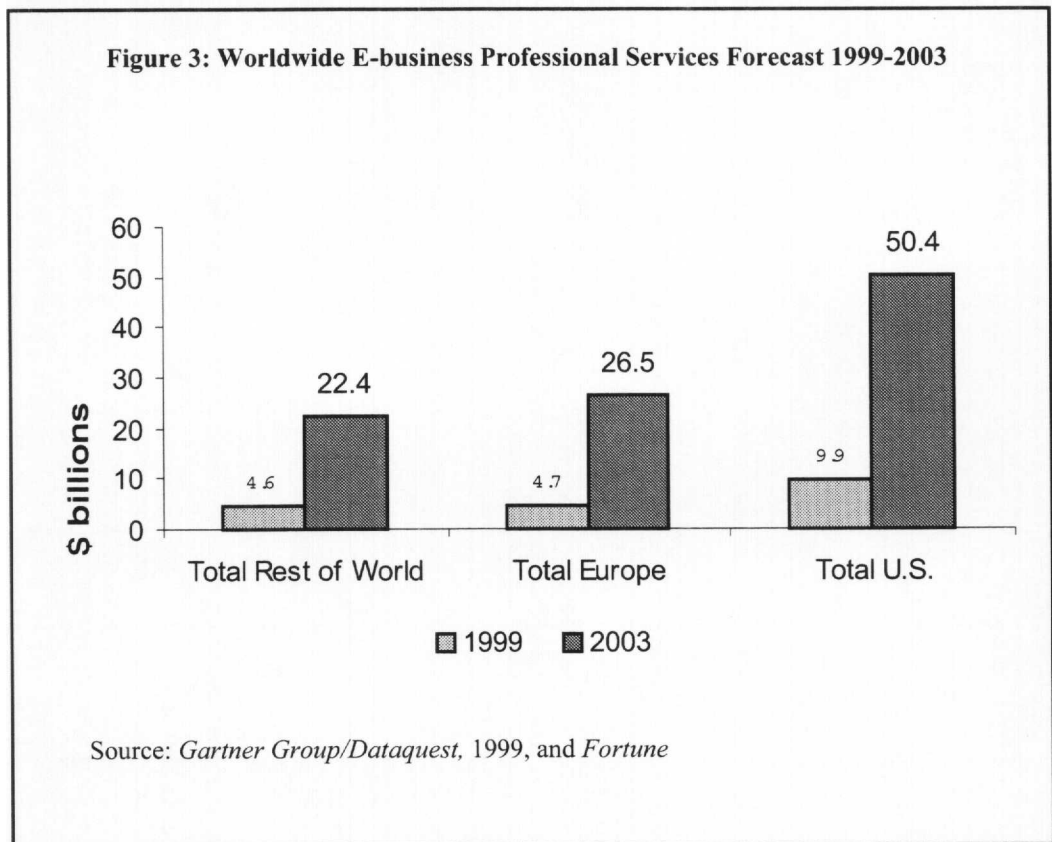
Companies are even getting creative on how they procure and finance the technical infrastructure to support the E-business strategy-from equity partnerships to revenue sharing to pay-as-you-go on the basis of customer utilization alone. Those businesses which fail to act or who cannot adapt to an E-business environment will cease to exist in the future. Companies must transform traditional business processes into successful E-business practices. The shift toward E-business does not mean that every company will become a high-tech company. It is necessary for companies to remain focused on core competencies (Figure 4).

Figure 4: U.S. E-business Professional Services Forecast by Service Line 1999-2003
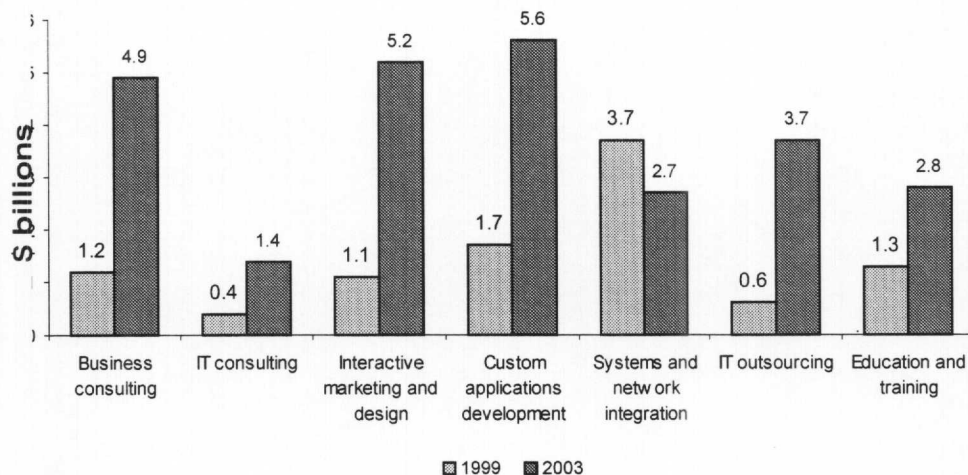
Source: *Gartner Group/Dataquest*, 1999, and *Fortune*

*E-speak will be the universal language of E-business and E-services.*To succeed in this new world, service providers must consider two important points. First, they must move their businesses rapidly toward a new world of E-services, while increasing value to their customer. Second, the must adopt a global infrastructure with mission critical reliability. For most organizations this requires spending time and money in an effort to stay competitive.

Alternative Financial Models. Three alternative financial models have emerged (Figure 5). The first model is known as "venture financing". This model provides funding to off-set technology and other start-up costs in return for warrants, convertible securities, and the right to purchase stock during the IPO process, among other financial options. The second model, "strategic partnership", deploys outsourcing services, with a shared-revenue model based on the commercial success of the venture. The third model is "the pay-per-use financing model". The revenue sharing in this case is structured around the number of customers, services utilized, and how much of the data center assets are allocated to the services. One essential feature of E-service and the alternative financial models is the cooperation among many institutions.

Figure 5: Alternative Financing Models for E-Services
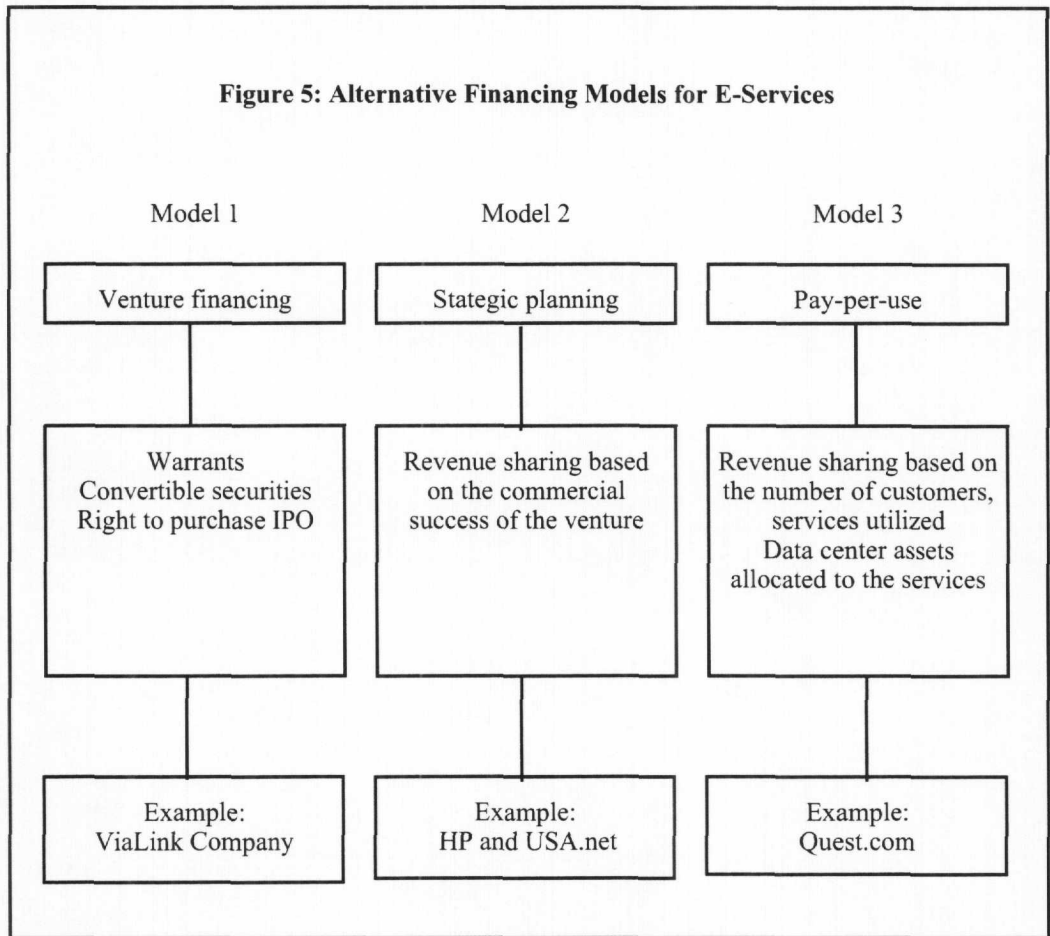
The Counteroffense to Fraud and Vandalism. Hundreds of security products offered by nearly 600 vendors protect against the variety of security threats. We address a few to shed light on the actions taken to deal with security technologies. Faced with hundreds of product choices, many companies use biometrics and public key information (PKI) software to deal with the security breaches. The key for corporations is the ability to authenticate an individual's identity and provide secure access to only those functions that individual is authorized to perform. PKI uses digital certificates. Digital certificates are

analogous with passports, where one's identity is determined by an accepted standard and authenticated by a trusted entity. Perspectives on E-security from PriceWaterhouseCoopers recommend an E-business architecture device, based on three components. The first is the security mechanism around the client (the Web browser), where the transaction begins. The second component is the security on the server side of the transaction. This encompasses the Web front end, legacy system, corporate databases, and information within the server. The third component is the transaction itself. Make sure the transaction goes from the buyer's side to the seller's side without hostile intervention.

American Express uses software and a system that includes an encrypted ID convention that associates the end user with a specific corporation and is hard to guess. They also use software to monitor, detect and handle any abnormal behavior. Another well-known software provider is RSA Security Inc. Their system focuses on three core aspects of E-security: authentication, encryption, and public key management systems. Nearly half a billion copies of today's most successful Internet applications, including Web browsers, commerce servers, E-mail systems, and virtual private network products use RSA Security technologies.

The RSA Security software uses a two-factor authentication process similar to the ATM card process. When one uses an ATM machine anywhere, one needs two "factors" to gain access to his or her account: a personal identification number and a PIN. If one is missing either one, one does not get access. RSA SecurID uses a token or smart card and a PIN. The PIN plus the currently displayed value on the token, which changes every 60 seconds, form one's identification-the equivalent of having a new password every minute without having to remember it. With RSA SecurID companies can definitely prove the identity of the user before that user is allowed to participate in the digital world. The RSA Keon line of products enables the use of digital certificates in order to guarantee one's identity online and to allow an individual with a matching RSA SecurID and PIN to access information encrypted with RSA BSAFE.

Conclusion

The purpose of this paper is to shed light on the importance and activities of E-business/E-commerce, and its progress in the recent years. It is clear that companies without E-business strategies lack the stature required in comparison to those that participated in the Internet Investment strategy. This study reveals five key points concerning the application of Internet and E-business strategy. First, E-business is no longer an alternative; it is an imperative factor for any business success in the future. Second, there is no uniform prescription or model to fit all companies. Even companies in the same industry, of the same size, and with similar culture are finding that one E-commerce strategy doesn't fit all. Third, the major benefit of E-business is to gain competitive advantage, and increase efficiency in the multi-functional areas of management information, integration of suppliers and vendors, better distribution and lower transaction costs, and better marketing coverage. Fourth, E-business remains a phenomenon exclusively of advanced nations. Developing countries lack money and knowledge of technology to be participant in this global phenomenon. Adjustment in the current domestic regulations that currently exist among WTO countries, and under GATT and GATS Agreements, may address

some of the problems associated with electronic transactions. Fifth, there is a strong need to redesign PCs and software to address Internet security and vulnerability.

Nevertheless, it is clear that many corporations jumped into E-business without consideration for costs and benefits of Internet connection strategy. As a result, the probability of failure increased, and many companies found that the impact of their strategic investment decisions damaged their ROI.

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